CLAIMS

1. A method for reducing errors in a piece wise linear analog to digital converter, said piece wise analog to digital converter operating between a minimum voltage and a maximum voltage, said piece wise analog to digital converter using one or more comparators to generate one or more digital bits, each of said digital bits representative of a conversion voltage, said conversion voltage less than said maximum voltage, said method comprising the steps of:

allocating a first voltage interval for linear analog to digital conversion, said first voltage interval extending from said minimum voltage to an intermediate voltage, said intermediate voltage less than said maximum voltage;

allocating a second voltage interval for linear analog to digital conversion, said second voltage interval extending from said intermediate voltage to said maximum voltage;

encoding an error correcting band between said first voltage interval and said second voltage interval.

2. A method as described in claim 1 wherein each of said one or more comparators has a sensing level, said error correcting band centered with respect to one of said sensing level, said sensing level at said intermediate voltage.

3. A method as described in claim 2 wherein said error correcting band extends over a correcting voltage, said correcting voltage a fraction of said conversion voltage.

4. A method as described in claim 3 wherein 12 digital bits are used within said piece wise analog to digital converter.

5. A method as described in claim 4 wherein said error correcting band is 1/2048 of the difference between said minimum voltage and said intermediate voltage.

6. An encoding method for reducing analog to digital conversion errors in a

transmitter said transmitter using a piece wise linear to digital conversion to convert an analog signal to a digital signal representative of said analog signal, and a receiver to reconstruct said analog voltage from said digital signal back to said analog format, said analog signal having a minimum voltage and a maximum voltage, said transmitter using one or more comparators to generate said digital signal, said digital signal having one or more digital bits representative of said analog signal , comprising the steps of :

allocating two or more voltage intervals for linear analog to digital conversion within said transmitter, each of said voltage intervals concatenated to cover said minimum voltage to said maximum voltage;

encoding an error correcting band between each of said two or more voltage intervals to obtain a digital signal;

transmitting said digital signal to said receiver;

detecting digital signatures, said digital signatures corresponding to said error correcting bands included within said digital signal;

subtracting said digital signature from said digital signal to obtain a corrected digital signal;

decoding said corrected digital signal to reconstruct said analog signal.

7. A method as described in claim 6 wherein each of said one or more comparators has a sensing level, said error correcting band centered with respect to one of said sensing level.

8. A method as described in claim 7 wherein said error correcting band extends over a correcting voltage, said correcting voltage a fraction of said minimum to said maximum voltage.

9. A method as described in claim 8 wherein 12 digital bits are used within said transmitter to convert said analog signal to said digital signal.

10. A method as described in claim 9 wherein said error correcting band is

1/2048 of the difference between said minimum voltage and said maximum voltage.

11. A piece wise linear analog to digital converter having reduced errors, said piece wise analog to digital converter operating between a minimum voltage and a maximum voltage, said piece wise analog to digital converter using one or more comparators to generate one or more digital bits, each of said digital bits representative of a conversion voltage, said conversion voltage less than said maximum voltage, said converter comprising:

a first voltage interval for linear analog to digital conversion, said first voltage interval extending from said minimum voltage to an intermediate voltage, said intermediate voltage less than said maximum voltage;

a second voltage interval for linear analog to digital conversion, said second voltage interval extending from said intermediate voltage to said maximum voltage;

an error correcting band between said first voltage interval and said second voltage interval.

12. A digital converter as described in claim 11 wherein each of said one or more comparators has a sensing level, said error correcting band centered with respect to one of said sensing level, said sensing level at said intermediate voltage.

13. A digital converter as described in claim 12 wherein said error correcting band extends over a correcting voltage, said correcting voltage a fraction of said conversion voltage.

14. A digital converter as described in claim 13 wherein 12 digital bits are used within said piece wise analog to digital converter.

15. A digital converter as described in claim 14 wherein said error correcting band is 1/2048 of the difference between said minimum voltage and said intermediate voltage.

16. A digital transmission link having a transmitter using a piece wise linear

to digital conversion to convert an analog signal to a digital signal representative of said analog signal, and a receiver to reconstruct said analog voltage from said digital signal back to said analog format, said analog signal having a minimum voltage and a maximum voltage, said transmitter using one or more comparators to generate said digital signal, said digital signal having one or more digital bits representative of said analog signal , said digital transmission link comprising:

a transmitter having two or more voltage intervals for linear analog to digital conversion, each of said voltage intervals concatenated to cover said minimum voltage to said maximum voltage;

one or more error correcting bands between each of said two or more voltage intervals to obtain a digital signal;

transmission means for said digital signal to said receiver;

a receiver having a detector for a digital signature, said digital signature corresponding to said error correcting bands included within said digital signal;

means for subtracting said digital signature from said digital signal to obtain a corrected digital signal;

means for converting said corrected digital signal to said analog signal.

17. A link as described in claim 16 wherein each of said one or more comparators has a sensing level, said one or more error correcting band centered with respect to one of said sensing level.

18. A link as described in claim 17 wherein each of said one or more error correcting bands extends over a correcting voltage, said correcting voltage a fraction of said minimum to said maximum voltage.

19. A link as described in claim 18 wherein 12 digital bits are used within said transmitter to convert said analog signal to said digital signal.

20. A method as described in claim 19 wherein said error correcting band is 1/2048 of the difference between said minimum voltage and said maximum voltage.